the margins of both wings ; a black spot at the end of each cell ; no other markings.
Expanse of wings $\frac{8}{10}$ inch.
Kashmir ; one example.

## Family Geometridx.

## Microloxia vestigiata, nov.

ठ. Palpi above orange-red, whitish beneath ; anteunæ orange, shafts and base white ; frons orange-red, with a pale band ; top of head and abdomen ochreous white ; thorax and wings of a uniform pale grass-green ; costal line of fore wings pale ochreous white ; cilia white, no markings above or below : body below white; legs tinged with ochreous.

Expanse of wings $1_{10}^{4}$ inch.
Kashmir ; three examples.
LXIX. - Notes on the various Forms of Arvicanthis pumilio, Sparrm. By R. C. Wroughton.
The Natural History Museum possesses a very fine series of specimens of this common South-African mouse, amounting to over 130 individuals from more than thirty localities. The majority of these and the best prepared have been obtained by Mr. C. H. B. Grant in connexion with the exploration of the mammal fauna of South Africa now being carried on by Mr. C. D. Rudd, by whom they have been presented to the Museum. Those from Deelfontein were obtained by the same collector working for Col. Sloggett, and other smaller series are due to Mr. F. C. Selous, Mr. J. ffolliott Darling, Sir H. H. Johnston, Mr. R. B. Woosnam, Dr. W. J. Ansorge, Mr. F. J. Jackson, and others.

A detailed examination of this collection has satisfied me that the general pattern of the coloration in this species (or group of species) is, without exception, absolutely constant in all the forms, which are spread over Africa south of the Equator.

The coloration, on the other hand, is almost as variable as the pattern is constant. From one or two localities there are series which are fairly evenly coloured, but in the majority of cases there are almost as many variations of colour as there are individuals in a series.

I have found, however, that the size of the bulle furnishes
a reliable character on which to base a differentiation of forms, which agrees very fairly with their geographical distribution, and have thus been able to distinguish four groups with bullæ whose antero-posterior lengths are respectively $6 \cdot 5,6,5 \cdot 5$, and 5 mm .

Group I. covers the country, roughly speaking, south of $25^{\circ} \mathrm{S}$. lat. and west of $25^{\circ} \mathrm{E}$. long.

Group II. runs along the coast from the Cape to Zululand, but a form of this group crops up in Angola. The area directly north of Group I. is unrepresented in the collection except by a single specimen from Matopo, but this specimen falls also into Group II.

Group. III. occupies the whole of the country north of $25^{\circ} \mathrm{S}$. lat. and east of $25^{\circ} \mathrm{E}$. long, except in two small isolated patches.

Group IV., so far, is represented by specimens from two isolated areas, viz.:-

1. Basutoland, and a small area adjoining, along the crest of the Drakensberg.
2. The Mlangi Plateau, Nyasaland.

The specimens from both these localities are labelled " 6000 ' Alt.," and possibly even this altitude is a comparatively lower level surrounded by still greater heights; it certainly is so in the case of the Basutoland specimens. In any case, however, this group is evidently a high-level form.

Each of these groups contains, as will be seen, more than one form, and I have found it very difficult to decide as to the systematic status which should be given to these forms. I think that each of these four groups should probably rank as a species; but if pumilio is once broken up consistency would require that other species besides these should be formed (e. g. pumilio and vittatus, both taken at Cape Town, \&c.). I lave come to the conclusion that, in view of the absolute identity of pattern, the variability of coloration, and the difficulty of deciding the inter-relationship of the different forms, the simpler and safer way is to call them all subspecies of the original species pumitio.

The following is a key to the various forms I have been able to differentiate : -

[^0]B. Antero-posterior length of bullæ 6 mm .
a. Length of tooth-row 4.8 mm .
$a^{1}$. Basilar length of skull $24 \mathrm{~mm} . \ldots . .$. . mumilio, Sparrm.
$b^{1}$. Basilar length of skull $21 \mathrm{~mm} . \ldots . .$. (?) vittatus, Waguer.
b. Length of tooth-row less than 4.8 mm .
$a^{1}$. Hind foot 23 mm . ; basilar length of skull 23 mm .; length of tooth-row 4.7 mm .
angola, subsp. n.
$b^{1}$. Hind foot 22 mm . ; basilar length of skull 21.5 mm .; length of tooth-row 4.6 mm .
intermedius, subsp. n.
$c^{1}$. Hind fout 21 mm . ; basilar length of skull 20 mm .; length of tooth-row 4.5 mm .
(Matopo specimen.)
C. Antero-posterior length of bullæ 5.5 mm .
a. Hind foot 22 mm . ; basilar length of skull

24 mm .; length of tooth-row 4.5 mm. .
b. Hind foot 20 mm. ; basilar length of skull
23.5 mm . ; length of tooth-row $4.5 \mathrm{~mm} .$. .
c. Hind foot 20 mm. ; basilar length of skull

22 mm . ; length of tooth-row 44 mm . .
D. Antero-posterior length of bullæ 5 mm .
a. Brighter coloured. Basutoland........... Moshesh, subsp. n.
b. Sombre-coloured. Nyasa ............... myasa, subsp. n.

Chake, subsp. n.
diminutus, Thos.
dilectus, de Wint.

## Arvicanthis pumilio bechuance.

Isomys pumilio bechuane, Thomas, P. Z. S. 1892, p. 551.
57.1.28.10. "Bechuanaland." (Type.)
81.3.8.8. i. Great Namaqualand.

The type specimen is a very old one, and the sknll is not available, but the enormous hind foot is alone sufficient to differentiate this form from any other.

## Arvicanthis pumilio cinereus.

Arvicanthis pumilio cinereus, Thos. \& Schw. P. Z. S. 1903, vol. ii. p. 336.
4. 2. 3. 68-74. Klipfontein, Namaqualand. Alt. $310 t^{\prime}$. Rudd Collection.
98. 9. 3. 5-7. Garies, Namaqualand. (No skulls.) Dr. R. Broom.

In the original description the length of the hind foot is given, from the collector's label, as 28 mm ., but this measurement is not, I think, reliable; measured on the specimen, the majority of the series show a hind foot of 26 mm . or slightly over. Judging from the other dimensions recorded by the collector, the tail in this form is slightly longer than the head and body.

The following are the normal dimensions of an adult individual:-

Head and body 120 mm. ; tail 125 ; hind foot 26 .

Skull: basilar length 24 ; length of tooth-row 5 ; ant.post. length of bullæ $6 \cdot 5$.

The following are measurements taken on a few selected specimens:-

|  |  |  | Basilar |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Hind foot. | length of skull. | f Length of tooth-row. | Bullæ. |
| 4. 2. 3. 69. | V. old ${ }^{*}$. | 26 | 24.5 | 5 | 65 |
| 4. 2. 3.74. | Old | 26 | 24 | 5 | 6.5 |
| 4. 2. 3. 70. | Y. adult | 26 | 23 | 5 | 6.5 |
| 98, 9.3.5. | ? . | 27 | ? | ? | ? |

Arvicanthis pumilio meridionalis, subsp. n .
95. 9.3.11-12. Rondebosch, Cape Town. F. C. Selous.
3.7.2.32, 34. Tokai Retreat, Cape Town. Alt. 600'. Rudd Exploration.
2.9.1.63. Deelfontein. Col. Sloggett.

The normal dimensions of this form are:-
Head and body 125 mm .; tail 120 ; hind foot 25.
Skull : basilar length 24 ; length of tooth-row 5 ; bullæ 6.5 .
This form differs but little in dimensions from cinereus except that the hind foot is slightly but constantly shorter.

Whereas cinereus, however, is one of the few forms which are constant in their coloration, in which there is no trace of rufous or fulvous, meridionalis, on the other hand, has no two individuals alike, though all are markedly tinged with fulvous.

The following are dimensions taken from selected specimens of meridionalis :-

|  |  |  | Basilar |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Hind foot. | length of skull. | Length of tooth-row. | Bullæ. |
|  | 95.9.3.11. $\delta^{7}$. | Old | 25 | 243 | 5 | 6.5 |
|  | 95.9.3.12. ठ $^{\text {¢ }}$ | Adult | 25 | 23.5 | 5 | 6.5 |
| (Type) | 3.7.2.34. ¢. | V. old | 25 | 24 | 5 | 6.5 |
|  | 2.9.1.63. $\mathrm{J}^{\circ}$. | Adult | 24 | 23 | 5 | 6.5 |

Arvicanthis pumilio griquæ, subsp. n .
4.10.1.61, 4.4.8.15-21. Kuruman, Bechuanaland. Alt. $4000^{\prime}$.

* These age classes throughout this paper are:-Young: basilar suture not closed. Y. adult : all teeth unworn. Adult : posterior molar worn. Old all teeth slightly worn. V, old: teeth worn flat.
4.1.6.4-7. Abraham's Kraal, Modder River. Alt. $4500^{\prime}$.
?97.1.13.1. Kimberley, O.R.C.
This form is exceptionally constant in its coloration, but the modifying tinge is rufous rather than the ordinary fulvous.

The normal dimensions may be taken to be as follows :-
Head and body 115 mm . ; tail 110 ; hind foot 24.
Skull: basilar length 22 ; length of tooth-row 4.6 ; bullæ $6 \cdot 5$.

The following are actual measurements of some selected specimens:-


The Kimberley specimen has an abnormal length of skull, but as by its other measurements and geographically it belongs here, I have ranked it as grique.

## Arvicanthis pumilio.

Mus pumilio, Sparrman, Vet.-Akad. Handl. 1784, p. 339.
Arvicola pumilio, Desmarest, Mamm. 1822, p. 285.
Mus pumilio major, Brants, Muiz, 1827, p. 103.
Mus lineatus, Cuv. Mamm. 1829, pl. clxi.
Mus Donovani, Donovan, Nat. Repos. 1834, vol. iii. pl. lxxiii.
Mus septemvittatus, Schinz, Synops. Mamm. ii. 1845, p. 155.
Mus striatus, Sunderal, EEfv. Vet.-Ak. For. Stockh. 1846, p. 88.
The Mus pumilio major of Brants is said to come from the country interior to Cape Town and it is stated that it does not occur in Cape Town itself, while the habitat of Mus Donovani is given as "the same part of Africa" as that from which Sparrman's Mus pumilio came. There is nothing in either description by which any particular form can be recognized, and both descriptions give a length of head and body of $5 \frac{3}{4}$ inches (say 145 mm .). No specimen in the Museum collection reaches even 130 mm . Under these circumstances there is nothing for it but to rank both names as synonyms of "pumilio." As Sparrman erected pumilio on a quite immature specimen, I am compelled to select as the representative of typical pumilio the specimen which nearest coincides with it in habitat. Sparman states that
he obtained his specimens "in the Sitsicamma Forest hard by Slangen River," and his map shows that the "Sitsicamma" district extended along the shore of Algoa Bay as far as Cape Padrone, just short of which "Slang River" entered the sea. In the Museum collection are some specimens reeeived from the Grahamstown Museum and labelled "Uitenhage" and "Fish River"; these, therefore, being practically topotypes, may be accepted as typical pumilio. This being so, I recognize the following specimens in the collection as being typical pumitio :-
97.11.5.26-30. Uitenhage, C.C.
5.5.7.67-75. Knysna, C.C. Alt. 1400'.
3. 6. 2. 14, 15. Port St. John, Pondoland.
4.12. 3. 81. Umfolosi, Zululand. Alt. 230'.
3. 7. 2. 23, $25,26,28$. Newlands, Cape Town. Alt. 700'.
3.7.2.29-31. Tokai Retreat, Cape Town. Alt. 50-500'.

The normal dimensions of $A$. pumilio may be taken to be as follows :-

Head and body 120 mm . ; tail 116 ; hind foot 24.
Skull : basilar length 24 ; length of tooth-row $4 \cdot 8$; bullæ 6.
The series from Knysna are quite constant in colour amongst themselves and show almost no tinge of either fulvous or rufous; they are probably a forest form, and it is noticeable that they come from a markedly higher elevation than the others. The remainder show the usual individual variation in the amount of fulvous colouring. The following are measurements of some selected specimens:-


Unfortunately the Grahamstown Museum skulls are much broken and in no case is the " basilar length of skull" available; but the one whose dimensions are given above has a "greatest length" of 30 mm ., which is about the same as that of all the others in the table.

The following specimens-

|  |  |  | Basilar |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Hind foot. | lencth of skull. | Length of tooth-row. | Bullæ. |
| 3.7.2.22. | Y. adult | 24 | $20 \cdot 5$ | $4 \cdot 8$ | 6 |
| 3.7.2.24. | Y. adult | 24 | $20 \cdot 5$ | 4.8 | 6 |
| 3.7.2.27. | Young | 24 | 19 | $4 \cdot 8$ |  |
| 3.7.2.33. | Adult. | 24 | $21 \cdot 6$ | $4 \cdot 8$ | 6 |

-among those taken at Cape Town seem to point to a distinct form having a far shorter head than pumilio. Uufortunately all the specimens are comparatively young. I have given the antero-posterior length of bullæ in these specimens as 6 , but it is, 1 believe, slightly less, though greater than $5 \cdot 5$; this measurement is a difficult one to take uniformly, and I have not dared to record differences of less than $\frac{1}{2} \mathrm{~mm}$. Should the receipt of more specimens, especially old ones, show later that this is a good form, the name of vittatus, Wagner (Arch. Naturg. viii. 1842, p. 11), is, perhaps, available for it, the name having been based on specimens from the Cape "Promontory"; till then I fear vittatus must rank as a synonym of pumilio.

## Arvicanthis pumilio intermedius, subsp. n.

2.9.1.62, 65, 69-71.)
$\left.\begin{array}{l}\text { 3.1.4. } 52-55 . \\ 1.7 .9 .35,36 .\end{array}\right\}$ Deelfontein.
This is a form which combines some characters from each of its neighbours, griquce on the north and pumilio on the east. From the former it differs by its smaller hind foot and bullæ and from the latter by its smaller hind foot and toothrow. It is most variable in its coloration, no two specimens being exactly alike, and, judging from collector's measurements, the tail is slightly longer than the head and body.

The normal dimensions may be taken as:-
Head and body 105 mm . ; tail 108; hind foot 22.
Skull: basilar length 21.5 ; length of tooth-row $4 \cdot 6$; bullæ 6.

The measured dimensions of some selected specimens are as follows:-

|  |  |  | Basilar |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Hind foot. | length of skull. | Length of tooth-row. | Bullæ. |
|  | 2.9.1.69. | ㅇ. Old.. | 22 | ? | $4 \cdot 6$ | 6 |
|  | 2.9.1.70. | ¢. Y.adult. | 22 | 20.5 | $4 \cdot 6$ | 6 |
|  | 2.9.1.71. | ¢ ${ }^{\text {. Adult.. }}$ | 22 | 21 | $4 \cdot 6$ | 6 |
| (Type) | 3.1. 4. 53. | ठ. V.old.. | 22 | 21.5 | 4.6 | 6 |
| (Type) | 1.7.9.35. | + P Old.... | 22 | 21.5 | $4 \cdot 6$ | ${ }_{6}$ |

## Arvicanthis pumilio angole, subsp. n.

5.5.9.41-46. Caconda, Angola. Alt. 4700'.

This form, though belonging to the group with medium bullæ, is completely separated from the other members of the group noticed above. It is rather smaller all round than pumilio and has a fairly constant though dull coloration, resembling that of dilectus. The tail is apparently markedly shorter than the head and body, much more so than in any other form.

The normal dimensions may be put as :-
Head and body 118 mm . ; tail 95 ; hind foot 23.
Skull: basilar length 23 ; tooth-row $4 \cdot 7$; bulle 6 .
The skulls are unfortunately much broken and the actual basilar length cannot be measured in any one of them; but the greatest length and zygomatic breadth are about 28 and 13.5 mm . against 30 and 14 in pumilio. I have therefore taken 23 mm . as the probable "basilar length of skull." The following measurements are from selected specimens :-


There is a siugle specimen from Matopo with dinensions as follows :-

|  | Hind <br> foot. | Basilar <br> length of <br> skull. | Length of <br> tooth-row. | Bullæ. |
| :--- | :--- | :--- | :--- | :--- |
| 4.10.1.87. ㅇ. Adult $\ldots . .$. | 21 | 19.5 | $4 \cdot 5$ | 6 |

and the label gives-head and body 89 mm . ; tail 96 .
I do not venture to give a specific name to this form represented by only a single specimen (and that a comparatively young individual), but have thought the existence of this specimen worthy of record as seeming to indicate that the country west of dilectus and north of Group II. will be found, when examples from it are available, to be peopled by a form with medium-sized bullæ, linking up this specimen with angolve.

Arvicanthis pumilio Chake, subsp. n.
4. 5. 1. 68-74. Sibudeni, Kululand. Alt. 3500'.
4.12.5.27-29. Estcourt, Natal. Alt. $4500^{\prime}$.
4.6.6.14, 15. Notinsila, Pondoland.
4.9.1.62, 65-67. Wakkerstroom, Transvaal. Alt. $6000^{\prime}$.
4.9.1.61. Zuurbron, Transvaal. Alt. $4600^{\prime}$.

This form has slightly larger teeth than the other forms with small bullæ. It appears to range between the Drakensberg and the coast at somewhat high elevations, meeting the form of Basutoland and the Eastern Transvaal at Wakkerstroom. The Pondoland and Natal specimens are dull-coloured as compared with the more northern individuals, but there is much variation in colour.

The normal dimensions may be taken as:-
Head and body 115 mm . ; tail 105 ; hind foot 22.
Skull : basilar length 23 ; tooth-row $4 \cdot 6$; bullæ $5 \cdot 5$.
The following are some measurements of selected specimens :-

|  |  |  | Basilar |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Hind foot. | length of skull. | Length tooth-row | Bullæ. |
|  | 4.5.1.65. ㅇ. $^{\text {. }}$ | Y. adult. | 22 | 22 | $4 \cdot 6$ | 5.5 |
|  | 4.5.1.68. 9. | V. old | 22 | 24 | $4 \cdot 6$ | $5 \cdot 5$ |
| (Type) | 4.5.1.72. ${ }^{\text {d }}$ | Old. | 22 | 23 | $4 \cdot 6$ | 5.5 |
|  | 4.6.6.14. ${ }^{\text {d }}$. | V. old | 22 | $23 \cdot 5$ | $4 \cdot 6$ | 5.5 |
|  | 4.9.1.62. ${ }^{\text {o }}$. | V. old | 22 | 24 | 4.6 | 5.5 |
|  | 4.12.5.27. ठ | Adult | 22 | 22.5 | $4 \cdot 6$ | $5 \cdot 5$ |

I have named this form after Chaka, the famous Zulu chief.

## Arvicanthis pumilio dilectus.

Arvicanthis pumilio dilectus, de Wint. P. Z. S. 1896, p. 803.
95. 11. 3. 25-27. Mazoe, Mashonaland. Alt. 4000'.

1115, 1117, 1118, 1122, 1123, 1135, 1140, 1150. Zoutpansberg, Transvaal. Alt. 4400'. Rudd Exploration.
98.4.4.22. Krugersdorp, Transvaal. Alt. $4900^{\prime}$.

The normal dimensions of this form may be taken as:-
Head and body 105 mm . ; tail 95 ; hind foot 20 .
Skull: basilar length 22 ; tooth-row $4 \cdot 4$; bullæ 55.
Mr. de Winton based his subsp. dilectus on the specimens from Mazoe and spoke of them as dull-coloured ; the specimens from the N.W. Transvaal are brighter and curiously resemble A. p. griquce in coloration, though they are darker than that form.

The following are some measurements from selected specimens:-

| (Type) 95. 11. 3. 25. $\mathrm{o}^{\text {\% }}$. Old | Basilar |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Hind foot. | length of skull. | Length of tooth-row. | Bullæ. |
|  | 20 | 22 | $4 \cdot 4$ | 5.5 |
| 95.11.3.26. ठ\%. V. old. | 20 | $22 \cdot 3$ | $4 \cdot 4$ | $5 \cdot 5$ |
| 95.11.3.27. ठ' . Y.adult. | 20 | 21 | $4 \cdot 4$ | 5.5 |
| 1117. $0^{\circ}$. V. old | 20 | 22.5 | $4 \cdot 4$ | $5 \cdot 5$ |
| 1135. ${ }^{\text {che }}$. Adult | 20 | 21.5 | $4 \cdot 4$ | 5.5 |
| 1140. ¢ ¢ Old | 20 | 21.5 | $4 \cdot 4$ | 5.5 |
| 98.4.4.22. $\mathrm{or}^{\text {a }}$. V. old. | 20 | 22.5 | $4 \cdot 4$ | 5.5 |

## Arvicanthis pumilio diminutus.

Isomys pumilio diminutus, Thos. P. Z. S. 1892, p. 551.
93.2. 3. 39, 40. Mianzini, Masailand.
99.8.4.85-88. Ravine Station, B.E.A.

The normal dimensions are:-
Head and body 94 mm .; tail 62 ; hind foot 20.
Skull: basilar length $23 \cdot 5$; tooth-row $4 \cdot 5$; bullæ $5 \cdot 5$.
The coloration, as shown by the half-clozen specimens, is very constant, showing a bright golden tinge throughout the dorsal ground-colour and bright, almost white, interspaces between the dorsal stripes.

Though not markedly larger than dilectus in any one dimension, it is distinctly though slightly larger all round. The following are some actual measurements :-

|  |  |  | Basilar |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Hind foot. | length of skull. | Length of tooth-row. | Bullæ. |
| 93. 2. 3. 39. ? | Old | 20 | 23 | $4 \cdot 5$ | 5.5 |
| 99. 8.4.35. ठ $^{\text {c }}$ | Old. | 20 | 23.5 | $4 \cdot 5$ | 5.5 |
| 99.8.4.85. 아. | Y. adult | 20 | 20 | 4.5 | 5.5 |

Arvicanthis pumilio Moshesh, sp. n.
4.12.5.48-51. Maseru, Basutoland. Alt. 5000'. 4.9.1.59, 60. Zuurbron, Transvaal. Alt. $4600^{\prime}$. 4.9.1.63, 68. Wakkerstroom, Transvaal. Alt. $6000^{\prime}$. 98.3.23.7. Potchefstroom, Transvaal.
97. S.5.7. Krugersdorp, Transvaal. Alt. 4900'. 4.5.1.69, 74. Sibudeni, Zululand. Alt. $3500^{\prime}$.

This is a form with very small bullæ, which seems to have its habitat in the country along the crest of the Drakensberg. At Krugersdorp it appears to meet dilectus, the form of the N.W. Transvaal \&c., and at Wakkerstroom and Sibudeni the below Berg form (Chakes). Whether it is or is not found immediately northwards, however, there is unfortunately no evidence to show; a very similar form has been
found on the high plateau south of Lake Nyasa (see below). It is fairly constant in coloration, showing but a slight fulvous tinge over the ground-colour of the back; the dorsal stripes are black and the interspaces differ in no way from the general dorsal coloration.

The normal measurements may be taken as:-
Head and body 110 mm. ; tail 90 ; hind foot 21.
Skull : basilar length 22 ; tooth-row 4.5 ; bullæ 5 .
The following are some actual measurements :-


I have namcd this species after Moshesh, the founder of the present ruling dynasty of Basutoland.

Arvicanthis pumilio nyase, subsp. n.
92. 8. 1.41-44. Mlanje Plateau, Nyasa. Alt. 6000'. Sir H. H. Johnston.

So far as the measurements go, on which I have chiefly relied, I can find no difference between this form and Moshesh. However, I regard the 600 or 700 miles which separate their habitats as a strong argument for separating the forms. nyasce is more sombre-coloured, i.e. less fulvous tinged, has a stouter broader skull, and a slight difference in the shape of the posterior molar, which is pentagonal or subcircular in horizontal section, while in Moshesh this tooth is laterally compressed in an oblique direction acioss the jaw, sloping backwards and slightly outwards. The skulls available are much broken, but I quote the following measurements:-

|  |  |  |  | Basilar |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Hind foot. | length of skull. | Length of tooth-row. | Bullæ. |
|  | 92. 8. 1. 41. ? | Old | 21 | ? | 4.5 | ? |
| (Type) | 92.8.1.43. ? | Old | 21 | 22 | $4 \cdot 5$ | 5 |


[^0]:    A. Antero-posterior length of bullæ 6.5 mm .
    a. Hind foot 27 mm , or more ............... bechuana, Thos.
    b. Hind foot less than 27 mm .
    $a^{1}$. Length of tooth-row 5 mm .
    $a^{2}$. Hind foot 25 mm . or more........... cinereus,Thos.\&Schw.
    $b^{2}$. Hind foot at most $25 \mathrm{~mm} . . . . . . . .$. . meridionalis, subsp. n .
    $b^{1}$. Length of tooth-row 4.6 mm . ......... grique, subsp. n.

